# MULTI-LAYER RUN LEVEL ENCODING AND DECODING

## ABSTRACT

5          Entropy coding and decoding techniques are described, which may be implemented separately or in combination. For example, a video encoder uses two-layer run level coding to reduce bitrate for frequency transform coefficients in a quick and efficient manner, and a video decoder uses corresponding two-layer run level decoding. This two-layer coding/decoding can be generalized to more than two layers of run level coding/decoding. The video encoder and decoder exploit common patterns

10        in run level information to reduce code table size and create opportunities for early termination of decoding. Using zoned Huffman code tables helps limit overall table size while still providing a level of adaptivity in encoding and decoding. Using embedded Huffman code tables allows the encoder and decoder to reuse codes for 8x8, 8x4, 4x8, and 4x4 blocks.